

The LongPath

A North Alabama DX Club Publication

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- Treasurer's Report

How to Join

- * Come to a club meeting;
- * or send in an application by mail (form on www.NADXC.org)
- * or call Tom Duncan at (256)705-2147

From the President

On Saturday April 21st a crew consisting of myself, K4MMW, K8KI, AB4B, AC4G, N5DF, NM4T, W4NBS, and N4BCD met at N4KG's place to begin taking down and cataloging the ham-related estate materials. The first two towers were supported by only 1 leg. Never just bury the bottom section a few feet in the ground. The legs rusted completely away. We could not save the antennas. It was unsafe to climb either tower very far. Tower 1 (a 40' aluminum with TH7) in the front yard was the first one down. Since the antenna seemed to be in good condition we attempted a controlled lay-down. Stretching rope caused the destruction of the beam as it hit the ground. Tower 2 (Rohn 20 with remnants of a few beam elements & booms) also visible from the front was the next controlled crash. He had placed an aluminum tower next to the tower 2 to assist in support. We disassembled the parts into movable pieces and created piles of aluminum, steel, and copper wire. This stuff has mostly salvage value only. I believe the TH7 tower rotor did work.

Prior to our visit, Tom's extensive collection of radios, test equipment, rotor controllers, and other indoor electronics were moved out of his upstairs hamshack to a non-climate controlled shed. Warren K4MMW and a team of missionaries moved the equipment into that shed. The



N4KG's shack

club agreed this was not a good long-term storage strategy so the equipment was parceled out to a few technical experts to clean and ascertain the condition / functionality. The target is to have this equipment available for sale at the Huntsville Hamfest in August. The radios went to Bob K8KI, linears to John N5DF, Match Boxes and less functioning equipment to Warren K4MMW. I took home receiving antenna equipment and what appears to be a new 2 Meter yagi. All of the equipment was extremely dirty. Some had not been used in over 40 years. The initial results from testing looks much better than I expected. I believe Tom got some of this equipment and never tried to use it

Cont'd on p. 2

6 meter band: Past, Present, and Future

May Program by Tim Winingers, AB4B

Those of us who have slipped into the HF doldrums and fear we may never make it out again would do well to listen to Tim's presentation next this coming Tuesday, reminding us that the spectrum doesn't end at 29.999 MHz. Get to our new venue, Newk's, around 6:00 pm for dinner, 7:00 for the business meeting, and 7:30 or so for Tim's program.



From the President

(cont'd from p. 1)



Icom 746 for Ruth's son, cleaned up by K8KI

or get it to work. I am pleased to announce that the first piece of equipment, the ICOM 746 was given to Ruth's son. He and Tom were good



Henry 2K (complete with mercury vapor rectifiers) being tested by N5DF.

friends and he wanted the last radio Tom used. Ruth's son intends to use it. I have sent him a picture so he could see it in Tom's shack. Bob did a fantastic job cleaning up that rig and it's good to see them keep one of Tom's prized rigs in the family. I am surprised that the other 2 ICOMs that were much later models were not chosen by Tom for daily use. John N5DF has already gotten the Henry Amplifier to work. This is a classic that can be used but should not be pushed hard. It used a pair of 3-

400Zs. I love these old amplifiers. It is as heavy to lift as amplifiers get.

During this month's club meeting I plan to discuss how I would like to see the equipment and antennas dispositioned. If a club member is interested in a piece of equipment they will get priority over a non-club member. I would like to see the equipment used. If it will be put to use as a primary station item that gets priority over just going in a collection. An example would be a young ham with a new general license with little money would get priority over someone that wanted a 3rd backup rig. Those that have participated in antenna takedown, cleanup, repair, get priority. If you are interested in helping let me know.

There are six remaining towers to be brought down and two of them are the most challenging. One is 135 feet of Rohn 25 on a poor base that could fall on a neighbor's house if things go wrong. The other is an upside-down U shaped Rohn 25 that came down over a large tree in the April 2011 tornadoes. It has grown into the tree. Ruth has arranged for a tree surgeon to assist with taking down the tree tower and



135' tower

2 others. We will need at least 1 club member to be present to assist with wire issues. This will happen in the mid May timeframe. The ground must be solid to bring in their trucks.

In June when Ruth returns to town we will have a yard sale. Before the yard sale we will need to get some pictures and an inventory of some of the better items so we can advertise.



Tower sections, misc. tubing

There are still an uncounted number of unused antenna elements, tower sections, spools of hardline, booms, masts, and other material to deal with.

I am glad we have Newk's reserved for our club meeting this month. I sent an email to Golden Corral corporate letting them know my dissatisfaction with them the previous two meetings. The local manager did call me to apologize but offered no consideration for their screwup two months in a row. I look forward to the meeting so I can get some feedback from each of you on Newk's. I am happy Kelley was able to find Newk's for us.

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From the President

(cont'd from p. 1)

Jim Fenstermaker, K9JF has committed to be our banquet speaker. Martti OH2BH, Vjolla Z61VB and Jim, K9JF gave a joint presentation at Visalia last month on Z60A. I am pleased our speaker is in the same class as the Visalia Annual International DX Convention. Visalia is sponsored by the Northern California DX Club. I have also made an inquiry into Gigaparts who is checking with Yaesu about a potential Grand Prize.

I look forward to Tim's presentation on 6 meter Sporadic E this month. It is the way I have worked most of my DX on 6 meters. I hope to learn a few of his tricks to get a few more in the log this year.

73 Steve AG4W



Misc N4KG equipment, hard line



April 10, 2018 Meeting Minutes

By Kelley Johns, W4VPZ, NADXC Secretary/Treasurer

Attendance

Members 21 & guests 3

Review of Sign-in Sheet & DX worked

Rob KB5EZ	XROYD, 7Q7EI FT8, RI50ANO, V31
Tim AB4B	3B7A
Fred AE4ED	RI5ANO, V31
Johnny KR4F	3B7A
Bob K8KI	A5A Bhutan
Steve KD2JSW	Cuba Mon
Warren K4MMW	Somoma (Somoa?) on 40m
Mark N4BCD	3B7A 40 +20m SSB, 30m RTTY
Steve AG4W	3B7A RTTY, RK3FG EME

Announcements

We will be looking for a new meeting venue for next month since the Golden Corral double-booked our room again. We will look at possibly meeting at Newk's on University Drive.

The Banquet Speaker is likely found! We are waiting on travel approval from his wife's sister (possible class reunion conflict):

Jim Fenstermaker K9JF

He was the only US amateur active with Z60A in Kosovo. The Z60A activation made 98k QSO's. He is an ARRL vice-director, and president of some DX clubs.

We are beginning to work on the prizes for the DX Banquet.

Tom Russell N4KG's sister, Ruth, is returning April 17. Most of Tom's gear has been moved to a shed on his property. The Club will try to get it moved out while she is there. The teams will

get called during this time to work on dropping the towers, which is one of our biggest concerns.

Membership Applications

Fred Massey AE4ED has turned in an application, and was voted in to membership. Welcome!

Update on Club's ARRL QSL card system: \$3/ounce flat rate. Will make calculations simpler.

3B7 is active now. RTTY is hard to catch. Active on 160 now.

Tonight's program will be Bob K8KI on Transmit Audio.

Good news! The DX Club's repeater W4QB 147.300 has been fixed, and is working better than it has in months.

Steve AG4W got his 2016 CQWW plaque in the mail this week.

Treasurer's Report

Beginning Balance \$ 4,575.82

Debits - Speakers Dinner -\$ 17.75

Credits (dues payments) \$ 220.80

Ending Balance \$ 4,778.87

The treasurer's report was approved of by the membership.

Meeting adjourned for the program (in the main dining room of the Golden Corral).

The LongPath Staff

Publisher/Editor:

Tom Duncan, KG4CUY

Departments:

Chuck Lewis, N4NM, DX Contests

Kelley Vann-Johns, W4VPZ, Minutes

Steve Werner, AG4W, From the President

Craig Behrens, NM4T, Barefoot Chronicles

DX Contests for May

By Chuck Lewis, N4NM

ARI International DX Contest (CW, SSB, DIG), 160-10M

May 5, 1200Z to May 6, 1159Z

Exchange: RS(T) plus serial or two-letter province

See Page 83, May QST or www.ari.it

CQ-M Intl. DX Contest (CW & SSB), 160-10M

May 12, 1200Z to May 13, 1159Z

Exchange: RS(T) plus Serial #

See page 83, May QST and

www.qrz.ru/contest

Volta WW RTTY DX Contest, 80-10M

May 12, 1200Z to May 13, 1200Z

Exchange: RST, plus S/N, and CQ zone

See page 83, May QST and [www.](http://www.contestvolta.com)

contestvolta.com

His Majesty King of Spain Contest, (CW), 160 – 10M

May 19, 1200Z to May 20, 1200Z

Exchange: RS(T) plus Serial # or EA Province

See page 83, May QST and

www.concusos.ure.es/en

Baltic Contest (CW & SSB), 80/75M only

May 19, 2100Z to May 20, 0200Z

Exchange: RS(T) plus Serial #

See page 83, May QST and

www.lrsf.it/bcontest/english

UN DX Contest (CW & SSB), 80-10M

May 19, 0600Z to 2100Z

Exchange: RS(T) plus serial or Kazakhstan district code

See page 83, May QST or

www.undxc.kz/bez-rubriki



CQ WPX CW Contest (CW), 160-10M

May. 26, 0000Z to May 27, 2359Z

Exchange: RST plus serial #

See page 83, May QST or

www.cqwpw.com/rules.htm

OTHERS:

Asia-Pacific Sprint, SSB

1100Z-1300Z, Jun 9

Boom Matching as a Rotary Dipole on 40/30 Meters

Tom Russell, N4KG, as reported by Mark Brown, N4BCD

I had heard N4KG mentioning this a time or two but it wasn't until a visit to K4RO last Saturday that the concept became clear. K4RO built and uses a long boom Yagi with an Omega match as a rotary dipole for 40m and credits Tom for the idea. As far as I can tell KG invented this and it might be a fitting tribute to resurrect this for the Longpath. So here it is...

Forward: The editors are unsure of the first appearance of this article by Tom N4KG (SK). This one was found on the Tower Talk reflector. It's also cited in ON4UN's Low Band DX'ing book and other places. It describes Omega matching a long boom Yagi for use as a rotary dipole on 40 or 30m.

BOOM MATCHING as a ROTARY DIPOLE on 40 / 30 Meters - N4KG

The loaded boom dipole trick works very well indeed! A 24 ft boom end loaded by

20M (full size or trapped) elements is self resonant very near 40M (resonance is not needed for efficient radiation). I have matched my TH6 boom first for 40M and now use it on 30M where it has accounted for 290 countries. Shorter booms will also work with slightly less bandwidth.

The radiation resistance of a dipole depends on it's height above ground so using someone else's exact matching system may not give identical results unless the antennas are at the same height also.

A better approach is to describe the TECHNIQUE and make your own matching system, tuned in place on the tower.

First, a matching ARM needs to be attached to the boom and brought back to the mast. I like to use 3/4 inch CATV hard-line as a semi-rigid piece of tubing that can be easily bent and formed. (Besides, it's free!)

Cont'd on p. 5

Dates & times often change or are misprinted in the journals; beware.

Chuck, N4NM

NADXC Officers and Directors

President	Steve Werner, AG4W
Vice President	Rob Suggs, KB5EZ
Secretary/	Kelley Vann-Johns, W4VPZ
Treasurer	
At-large	Kevin Hibbs, KG4TEI
Directors	Tom Duncan, KG4CUY

Treasurer's Report for April 2018

Beginning Balance	\$ 4,778.87
Credits	
Dues Payments (PayPal)	\$ 45.12
Ending Balance	\$ 4,823.99

Boom Matching

(cont'd from p. 4)

I use a sloping feed, from near the 15M director back to the mast about 12 to 15 inches above the boom, and insulated from the mast by a piece of slotted PVC over the aluminum tubing. I use 1/8 inch nylon rope to lash the tubing/PVC/mast together. Smash the end of the tubing and use a hose clamp to attach the arm to the boom. The arm may also be suspended below the boom if the antenna has enough clearance above the top of the tower. Either a sloping or parallel arm will work.

I like using an OMEGA match (see ARRL Antenna Book) because it can easily match lower impedances up to 50 Ohms AND tune out the inductive reactance of the arm. With this system, it is NOT necessary to find the 50 Ohm tap point (which can be a real pain!). If the beam is already on the tower, place the arm attachment point out as far as you can safely reach.

The OMEGA match uses two capacitors, one from the arm to "ground" (the center of the boom or mast, assuming a good boom to mast connection) and another from the arm to the center of your feedline. The braid of the feedline is connected to the "ground"/mast/boom-center.

To determine the necessary capacitor values, I mounted two 300 pF variable capacitors on a piece of plexiglas, with a plexiglas front, and pointer knobs. A piece of 3" by 5" card (paper) is mounted behind the knobs and lines drawn with calibration marks. (It helps to have a capacitance or impedance meter available for calibration).

To match the arm, I mounted two receiving-type 300 pF variable capacitors on a piece of plexiglas and connected the starters together. A short wire runs from this junction to the end of the arm where a hose clamp can be used to make the connection. The rotor of one capacitor goes to the "ground" connection at the mast or center of the boom. The rotor of the other capacitor goes to the center of your feedline. The braid of your feedline goes to the "ground" at the center of the boom or mast. Keep these leads as short as possible.

The BEST way to tune the capacitors is with a battery powered Antenna Analyzer. Your transmitter (at reduced power) with a helper, two meter radio, and SWR meter (at the antenna) will also work.

It is a good idea to wear heavy rubber gloves and have good communication (KEY, DONT KEY, etc.) with your helper.

Once the capacitor values are known, I make weather proof capacitors from solid dielectric coaxial cables such as RG-8, RG-213, or even RG-59.

(Solid dielectric cables have much higher breakdown voltage ratings than foam). Fifty ohm cables are approximately 30 pF per foot while 75 ohm cables are around 21 pF per foot. To prevent arcing at the far end of the cable, I trim off 1/2 inch of braid and tape the end. The cable can be coiled. I like to tape the coiled cables to the matching arm (isolated from the boom and mast). Be sure to attach the BRAID of the cable capacitors to the matching arm. (This prevents arcing from the braid through the outer jacket which has only a 600 V rating). The center conductor of the shunt capacitor (cable) is then connected to the mast or boom center. The center conductor of the series capacitor (cable) is connected to the center conductor of your feedline. Again, the braid of the feedline is connected to the center of the boom (or to the mast). It helps to draw a picture!

There are several advantages to matching the boom of a Yagi as a rotary dipole compared to using an inverted Vee suspended below the Yagi. One obvious advantage is that the antenna can be rotated to maximize radiation in the desired direction. A less obvious fact is that a flat horizontal dipole can have up to 3 dB more gain than an inverted vee because radiation off the ends is minimized and interactions with other antennas is minimized.

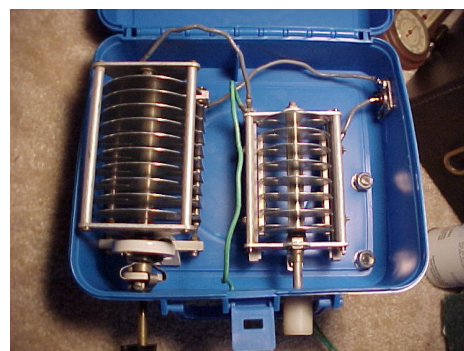
This technique of matching a Yagi boom as a rotary dipole has been successfully copied by several others with good success. My own systems continue to perform well after 20 years. Using various rotary dipoles at 80 ft, I have worked over 300 countries on 40 meters. Optimum heights

range from 80 to 90 feet, where the radiation resistance of a 40M dipole goes through a minimum, thus maximizing the current (and GAIN) of the dipole. Because of this impedance / current / gain relationship to height, further increases in height actually yield LESS gain until approaching a height close to 1 wavelength (140 ft.) !

If you have followed me this far, have an adventurous spirit, and are looking for a good 30 meter antenna in addition to 40M, I see no reason that one could not put a second matching arm to the opposite side of the mast and tuning that arm to match on 30M. If separate feedlines are used, be sure to NEVER connect both feedlines to separate radios at the same time!

Try it, you'll like it !

GL, Tom N4KG (10 / 23 / 97)



Above: K4RO's matching circuit, and below, K4RO's implementation of N4KG's long-boom loaded yagi rotary dipole for 40m using a gamma match.

